



# Digital identity use case for Kaduna State pensioners: case study



## Acknowledgements

The present case study was developed in collaboration with the use case implementation team, comprising the following persons:

- » From the Kaduna State Residents Identity Management Agency: Zayyad Tsiga, outgoing Executive Secretary, who led the work from the side of the Kaduna State government; Muhammed Jibrin Bamalli, Acting Executive Secretary and Director, Corporate Services; and Abbas Yerima, Director, Operations;
- » From the Kaduna State Pension Bureau: Salamatu Idris Isah, Executive Secretary;
- » From the Economic Commission for Africa: Mactar Seck, Chief, Technology and Innovation Section; Dobrina Poirier, Economic Affairs Officer; and Teniola Omole, consultant who developed the application.

## I. Introduction

Of all the continents, Africa has the largest number of people living without any form of identity document, numbering 470 million in total. These people lack access to vital services, including health care, social protection, education and finance. Closing the global identity gap requires a coordinated effort and tried and tested interventions aimed at accelerating progress towards target 16.9 of the Sustainable Development Goals: “By 2030, provide legal identity for all, including birth registration”, and in line with indicator 17.19.2, which gives increased impetus for improving civil registration and vital statistics systems.

The Economic Commission for Africa (ECA) has been working in close collaboration with the Kaduna State government, the Kaduna State Residents Identity Management Agency and the Kaduna State Pension Bureau on the conduct of a digital identity use case, with a view to simplifying and digitalizing the process of establishing and verifying the identity of pensioners.

ECA developed an application for the Pension Bureau to replace the physical verification exercise that the



16,651 State and local government pensioners had to undertake every 90 days. Pensioners had to travel long distances to a limited number of designated bank offices at various locations, which was a burdensome process for both the pensioners and the Pension Bureau. There are 23 local government areas and 255 wards in Kaduna State with no or very few banks, which poses a significant challenge of getting verified as at when due.

## II. Objectives and scope of the use case

### A. Importance of digital identity and interoperability in Africa

As noted above, target 16.9 of the Sustainable Development Goals calls for the provision of legal identity for all, including birth registration, by 2030. Attainment of this critical target could be facilitated by efficient and effective digital identification systems. Foundational identification, a form of identification that is accepted anywhere within the country in which it is issued and is accepted for any services that require identity verification, enables citizens fully to exercise their rights and to participate effectively in social and economic life, including voting, taking legal action, receiving government benefits, banking and borrowing. The widespread lack of identity documents in developing countries and Africa in particular has been a critical stumbling block to national growth. As observed by the World Bank, as many as 500 million Africans lack an official, foundational identification,<sup>1</sup> even though, in

some countries, up to two thirds of the population have a mobile phone subscription.

Similarly, a secure, inclusive, privacy-enabled, interoperable digital identity will facilitate the participation of Africans in the digital economy, which in Africa is expected to grow to over \$300 billion by 2025 (McKinsey, 2013), as a consequence of wide-scale penetration of mobile and other technologies. At the same time, country experiences have revealed risks associated with the pursuit of digital identity programmes, including vendor lock-in and the lack of privacy and data protection. The safe, robust and privacy-respecting use of personal data is essential to enabling African Union States to maintain their self-determination in the information age.

The emergence of digital identity systems, together with the extensive use of mobile devices in Africa, is bringing about a transformative solution that is available to far more people and that provides new and more efficient ways for Governments and businesses to reach and serve the population. Digital identity is becoming a priority in low-income countries as a primary source of identification and as an opportunity to foster digital, financial and social inclusion. Countries face challenges in delivering robust systems for physical proof of identity and, instead, are turning to digital platforms on which to build their identity systems, thereby leapfrogging traditional paper-based systems. The problems related to identity in African countries are vast, with millions of people left unregistered, not only impeding their access to e-government services but also complicating

<sup>1</sup> See <https://blogs.worldbank.org/en/digital-development/regional-digital-transformation-can-help-power-development-africa>.

the performance of such fundamental tasks as buying a phone or applying for a bank account.

To address these challenges and expedite the adoption of digital identity systems across Africa, the ECA Digital Centre of Excellence was established in 2018. Its primary objective is to spearhead good digital identification principles for a harmonized African continental framework on digital identity. This involves defining and shaping policies and standards for digital identity, while providing capacity development for members of ECA, regional economic communities and the African Union. The Centre's efforts are focused on harmonizing standards, regulations, infrastructure and capacity development across the African continent to facilitate the development of digital identity, electronic civil registration and vital statistics, and the economy. To realize the digital transformation objectives at subnational, national and continental levels, a comprehensive, interoperable and sustainable civil registration, vital statistics and identity management system is essential.

## **B. Objectives and scope of the Kaduna State Pension Bureau use case**

The Kaduna State Pension Bureau use case is one of the Centre's signature projects in advancing the adoption of digital identity systems in Africa.

The Kaduna State government requested the support of the ECA Digital Centre of Excellence to assist with the scoping, preparation and launch of a digital identity and electronic civil registration and vital statistics use-case solution. The objective of the assessment was to enhance and demonstrate inclusiveness, to facilitate the development of a digital economy, consistent with and reflecting best practices, and to use the insights and learning from the pilot to develop a policy for the leveraging of digital identity in all aspects of governance in Kaduna State. Use cases were considered across a wide range of areas, including financial inclusion, social services, health care, education and benefits management, law and order, revenue management and government operations.

Potential use cases were identified through an extensive assessment exercise which was performed in 2022. The

assessment identified 14 potential use cases within seven government entities. The pool of potential use cases cut across a broad range of activities, including validation of the national identification number for public services, such as health and education, and for loan schemes, and remote verification for programmes in such areas as social welfare benefits, compulsory basic education, revenue collection and management, pensions and traffic law enforcement, among others.

Each of these potential cases was ranked against a set of criteria, including the case's possible impact, feasibility for implementation and funding requirements.

The selection was made in a validation meeting with the Kaduna State Governor and other government and private sector stakeholders in 2023 and the team identified the Pension Bureau use case as the one selected for implementation.

The case selected as part of this assessment exercise was the development of a digital platform for the Pension Bureau, which aimed to enhance the functionality of the Kaduna State national identity system as used by pensioners.

The collaboration between ECA and Kaduna State marks a significant step towards building a knowledge economy for Kaduna State, which, with a population of 9.48 million citizens, is the third most populous state in Nigeria and the gateway to northern Nigeria and its 19 states. The collaboration will serve as a cogent example of how the digitalization of government services and processes can spur sustainable development and produce vital statistics that will enable accurate planning and decision-making.

## **III. Digital identity system in Nigeria and Kaduna State**

The Kaduna State government has long since recognized the importance of digital identity and its foundational role in many development outcomes, in particular inclusion, social protection, improved service delivery, equality, policy and decision-making, and many others besides. The state's digital identity project was initiated in 2015 and led to the signing of a memorandum of

## Digital identity issuance by local government areas

Local government area	Projected population	Total registrations
Birnin Gwari	400 806	124 397
Chikun	577 029	669 102
Giwa	453 201	255 192
Igabi	667 676	635 176
Ikara	301 825	238 558
Jaba	241 761	65 770
Jema'a	431 219	175 043
Kachia	391 485	203 166
Kaduna North	565 099	590 252
Kaduna South	624 241	543 661
Kagarko	370 545	144 068
Kajuru	170 208	101 337
Kaura	270 674	74 888
Kauru	342 982	184 915
Kubau	435 097	280 862
Kudan	215 385	139 336
Lere	526 604	466 206
Makarfi	227 193	184 420
Sabon Gari	451 611	379 572
Sanga	234 805	100 199
Soba	451 324	240 064
Zangon Kataf	494 442	128 569
Zaria	630 843	627 435
<b>Total</b>	<b>9 476 055</b>	<b>6 552 188</b>

understanding with the National Identity Management Agency in 2016. The state and the Agency work together to ensure that all residents of the state have a national identification number, which is used as the basis for the issuance of the Kaduna state residents card. The state proceeded to establish an agency to coordinate

this work, following the passage of the Kaduna State Residents Registration Agency (KADRRRA) Law No. 16 of 2018, which was later repealed and substituted with the Kaduna State Residents Identity Management Agency (KADRIMA) Law No. 7 of 2021. The Agency has three primary mandates:

- a) To create a reliable database of all residents in the state, with a view to providing useful data for planning, security, social welfare, employment, financial services, housing, demography, education, health and related matters;
- b) To ensure the easy identification of Kaduna state residents;
- c) To issue residence identity cards to eligible residents.

Over time, digital identity issuance has made significant progress in the state. As of March 2024, registrations stood at 6.55 million out of a projected population of 9.48 million, as presented in the table above, corresponding to a per capita coverage of 69 per cent. This makes Kaduna state the highest ranking of all the subnational entities in terms of its capita coverage for digital identity and puts the state ahead of the national coverage, which measures about 48 per cent.

The Kaduna State Residents Identity Management Agency was able to achieve this primarily by improving both supply and demand side factors. First, there was a significant uptick in the number of registration points and agents across the state. Where previously there had been 70 such registration centres, an additional 255 centres were activated using existing government facilities in each of the state's 255 political wards. Second, aggressive media campaigns to raise awareness of the importance of digital identity were carried out across the state with support from the Bill and Melinda Gates Foundation. The campaigns included such activities as the broadcast of radio jingles, deployment of town criers, hosting of strategic community dialogues and conduct of road shows. All the activities were carried out in the local and vernacular languages (Hausa and Pidgin).

Aside from enrolments, the Agency has made significant progress in deploying a master data management system. The system serves as the central identity database in Kaduna state and as the backbone for the state's e-governance initiatives and improved service delivery. On the one hand, it is integrated into the national identity database of the National Identity Management Commission. On the other hand, it has links with all

digitized agencies of the Kaduna State government, thus enabling them to verify the identities of residents that engage with them and further enabling them to deploy specific digital identity use cases to improve their operations. One example of such deployment is the new pensioner verification mobile application. Agencies linked to the master data management system include Kaduna Geographic Information Service, the agency responsible for land administration; Kaduna Internal Revenue Service, the agency responsible for tax administration; and Kaduna State Scholarship and Loans Board, the agency responsible for scholarships and bursaries.

## IV. Use-case implementation to improve the experience of retirees

### A. Verification procedure

The legacy process in place at the Kaduna State Pension Bureau required the state's retirees, numbering some 17,000, physically to present themselves at a limited number of designated bank office locations to perform a so-called "I am alive" test, in order to receive their pensions. This represented a very burdensome process, as the pensioners had to travel long distances to perform the verification. There are 23 local government areas in Kaduna State, comprising 255 wards, some of which have no – or very few – banks, posing a significant challenge to pensioners when their verifications become due. Beyond the limited number of participating bank branches, the significantly worsening security situation in parts of the State, such as Birnin Gwari, Giwa, Kachia and Sanga local government areas, has led to the closure of more bank branches. Pensioners resident in such areas often have to travel long distances to bank branches in neighbouring states such as Katsina and Plateau State to get themselves verified.

The new application has replaced the mandatory physical "I am alive" test, which can now be performed remotely on a mobile device using the retirees' national identification number and biometrics – specifically fingerprints. These are scanned with the camera on the phone and then matched with the biometrics registered in the state's digital identity system, a master

data management system which uses an application programming interface.

## B. Technology solution

This technology solution comprises a number of components: the pensions database at the Kaduna State Pension Bureau; a back-end validation service; a user-facing mobile interface; and the associated infrastructure. Details of these components are outlined below.

### 1. Pensions database at the Pension Bureau

The pensioners' user information consisting of personal and biometric information had been captured prior to commencement of this project. The solution essentially leverages this already captured information to present the pensioners with a self-service application to perform their proof of life verification.

The user's national identification number and fingerprint information had been captured and saved in a relational database accessible only locally with the Pension Bureau.

### 2. Back-end validation service

A back-end application programming interface service was developed to interface between the end-user (pensioner) and the pensions database, thereby providing a wrapper service to enable validation of the national identification number and biometric validation.

For the purpose of validation of the national identification number, users provide their number within the application, which will send a request to an application programming interface service for the validation of national identification numbers, and this in turn responds with a status indicating whether the number's owner is a pensioner or not. If a given user is confirmed as a pensioner, he or she will then be able to proceed to the next step of biometric validation.

For biometric validation, the user will then be asked to select a finger and hand that he or she would like to use for the validation and the application sends a request to the endpoint of the application programming interface service for biometric validation, where the candidate image (the image sent in the request) is compared against the image within the Pension Bureau database.

### 3. User-facing mobile interface

The user-facing mobile interface was developed as a native mobile application that can be downloaded and installed from the mobile application store. The native application enables several low-level graphical processing libraries to be employed to pre-process and transform the fingerprint image obtained from the device camera into a bitmap image that can be compared with the binary image of the fingerprint already held in the biometric database at the Pension Bureau.

### 4. Infrastructure

The team opted to host the support services for this application on premise. This meant that connections to the database could be private and fast while services that needed to be external were made available via a public Internet provider.

The necessary hardware was deployed to ensure uninterrupted power supply and connectivity.

## V. Deployment and key success factors

### A. Deployment

Besides the initial goal of developing the application to facilitate the process of periodic mandatory physical verification for pensioners, other developments in the state and country also served as additional impetus for the project. First, banks in the country have increasingly been shying away from investing in traditional brick-and-mortar branch offices, owing to the high costs involved and prevailing insecurity in the state. Consequently, most banks are now relying on agency banking for expansion, thus doing nothing to facilitate the legacy process of pensioner verification in the state. Second, new policies and regulations were introduced by the Central Bank of Nigeria which mandated tier 1 and 2 accounts to be linked with the individuals' national identification numbers. This caused significant foot traffic in banks across the country and made it even more difficult for pensioners to get attended to and carry out their verification. This also meant that pensioners with tier 1 and tier 2 accounts that had not previously been linked to their national identification numbers would not receive their payments.

The testing and deployment of the application also leveraged the network of registration agents of the Kaduna State Residents Identity Management Agency positioned throughout the State, averaging two agents per political ward. Pensioners who could not operate or did not have access to an appropriate mobile device may rely on Agency employees to assist them during the verification process. Working in collaboration with the Kaduna State government, ECA successfully conducted a training session for 43 staff members from the Management Agency and the Pension Bureau, designed to equip the staff members with the skills necessary for effective use of the application.

The training session, held at the Agency's head office, included 39 Agency staff members (23 field officers and 19 headquarters staff members), and 4 key staff members from the Pension Bureau. Principal components of the training session included the following:

- a) Hands-on mobile application training: participants received detailed instructions on the use of the application, including registration, biometric verification and trouble-shooting;
- b) Field application: practical sessions were conducted to prepare field officers to assist pensioners in remote and rural areas who may require help with the verification process or do not have access to the necessary mobile devices;
- c) Data management: the training covered the integration of the application with the state's master data management system, ensuring secure and efficient data handling;
- d) Feedback and improvement: participants were encouraged to provide feedback to enhance the application's functionality and user experience.

While testing the application, successful test verifications were carried out by Agency staff members with pensioners in two local government areas, namely, Jema'a and Sabon Gari. The tests helped to establish that the overall experience will fare well, even in rural and remote areas of the state.

## B. Key success factors

In advancing digital transformation initiatives, pivotal roles are played by collaboration and infrastructure. This case study highlights the collaborative efforts between the key stakeholders from the Kaduna State Residents Identity Management Agency, the Kaduna State Pension Bureau and ECA to develop a digital identity platform. Furthermore, it outlines key success factors and the potential for scalability and replication within other states of Nigeria.

Several key success factors contributed to the effective development of the digital identity platform and laid the groundwork for future scalability:

- a) Collaborative development efforts: The project team from the Management Agency, the Pension Bureau and ECA engaged in a collaborative effort to develop a digital identity platform tailored to the needs of pensioners. Through iterative consultations and feedback loops, the team ensured that the platform addressed specific challenges faced by pensioners, such as the burden of physical verification processes. This collaborative approach facilitated the collective creation of a solution aligned with the state's objectives and priorities;
- b) Vision for scalability: Kaduna State expressed keen interest in using the developed use case as a learning experience that could be scaled and replicated across other states in the country. This vision underscores the potential for impactful digital transformation initiatives to transcend geographical boundaries and benefit a broader population. By leveraging lessons learned and best practices gleaned from the Kaduna State project, other states can accelerate implementation of their own digital identity systems, thereby positively affecting the livelihoods of residents nationwide;
- c) Digital identity registrations: Kaduna State has made significant progress, with almost 70 per cent of its population registered for digital identity. This widespread adoption forms a solid

foundation for deploying digital solutions that can positively impact residents' lives.

- d) Master data management system: The establishment of a robust master data management system in the state ensures the secure storage and efficient handling of data, essential for the success of digital initiatives;
- e) Commitment to digital transformation, data protection and privacy: Kaduna State's commitment to digital transformation, as evidenced by initiatives such as the Nigeria Data Protection Act of 2023, the Digital Strategy and the State Economic Development Plan for the period 2021–2025, provides a conducive environment for innovation and scalability.

The collaborative development of the digital identity platform in Kaduna State exemplifies the power of partnership and infrastructure in driving digital transformation. By leveraging existing infrastructure and fostering collaborative partnerships, Kaduna State has paved the way for scalable and replicable digital solutions that will have a positive impact on residents' lives. As other states in Nigeria embark on their digital transformation journeys, they can draw inspiration from the successes and lessons learned in Kaduna State, thereby accelerating progress towards a digitally inclusive future. Continued investment in capacity building, regulatory frameworks and strategic partnerships will be essential for the scaling of similar initiatives in the future and realizing the full benefits of digital identity systems in Nigeria and beyond.

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